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*Addresses:* Per Alström, Kungsgatan 3, 462 33 Vänersborg, Sweden. Dr. S. Dillon Ripley and Dr. Pamela C. Rasmussen, NHB Room 336, Smithsonian Institution, Washington, D.C. 20560, U.S.A.

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## Body masses of birds of the *cerrado* region, Brazil

by Roberto B. Cavalcanti & Miguel Â. Marini

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Several papers published in this and other journals have stressed the importance of data on the body masses of birds (reviews in Nice 1938, and Clark 1979). However, there is a bias in the literature to reports on birds of forested regions. Body masses of Brazilian birds, for example, have been reported mostly for Amazonian localities (Oniki 1974, 1978, Novaes 1976, Bierregaard 1988, Graves & Zusi 1990, and Silva *et al.* 1990). The *cerrado* (savanna-like) region, which covers about 25% of Brazil, has only one comprehensive report on the body masses of birds made by Fry (1970). He gave the body masses of 156 species of birds from northeast Mato Grosso state. Reports that give limited data on the body masses of birds from the *cerrado* region include Sick (1958) (34 species from the Distrito Federal), Oniki (1980) (38 species from Minas Gerais state), and Oniki (1990) (15 species from Mato Grosso state).

This paper presents 571 body masses for 79 species of birds collected and mist-netted in eight localities in central Brazil between 1984 and 1990. We do not report here 246 body masses of 79 species which have small sample sizes or are wide-ranging. These are available from the authors upon request. We do report, however, small samples of species which are ecologically interesting or are relatively uncommon in the sites visited by us. Most birds were mist-netted or collected in 17 sites

at the Distrito Federal (15°30'–16°05'S, 46°15'–48°15'W), Brazil. Other birds were also collected at the Represa do Rio Manso in Mato Grosso state (MA; 14°45'S, 56°W), Minaçu (MI; 13°30'S, 48°15'W), São João da Aliança (SJ; 14°46'S, 47°30'W) and Silvânia (SI, 16°35'S, 48°45'W), in Goiás state; and at Paracatú (PA; 17°14'S, 46°52'W), Santa Fé de Minas (SF, 16°45'S, 45°30'W) and Ibiá (IB; 19°30'S, 46°31'W), in Minas Gerais state. Natural terrestrial habitats sampled include gallery forests, *cerrado sensu stricto*, grasslands, second-growth *cerrado*, *cerrado sensu lato*, deciduous forests, and wetlands. Some birds were also collected in man-made habitats (orchards, pastures, cities).

Body masses were taken with 30 g, 50 g, 100 g, and 300 g Pesola spring scales and with a 1 kg table balance. Mist-netted birds had masses recorded to the nearest 0.5 g, collected birds to the nearest 0.1 g. The use of different balances and different rounding methods may not affect the results since bird body masses may vary from 5 to 10% throughout the day, besides varying seasonally (Nice 1938, and references in Clark 1979). Taxonomy follows Meyer de Schauensee (1970). For samples sizes of 10 or more we give the mean  $\pm$  1 standard deviation, range, and sample in parenthesis. For samples smaller than 10, numbers in parentheses equal sample size for a particular mass value. Unless otherwise identified (by two letters in parentheses after the body mass) masses are from Distrito Federal. Body masses from different localities are separated by semi-colon. Sex and age identification (M, male; F, female; J, juvenile; S, subadult; I, indeterminate) was made whenever possible by examining the gonads of collected birds or by plumage characteristics of mist-netted birds. Double letters represent more than one individual. The classification by age and sex of *Antilophia galeata* follows Marini (1992). Specimens were deposited in the bird collection of the Departamento de Ecologia, Universidade de Brasília.

It may be noted that the list includes body masses of some poorly known birds endemic to the *cerrado* region (e.g. *Cypsnagra hirundinacea*, *Antilophia galeata*, *Neothraupis fasciata*, *Basileuterus leucophrys*, *Poospiza cinerea*). We stress the need of more records of body masses of birds from regions other than the Amazonian, such as the *cerrado*, the *caatinga*, and the Atlantic Forest.

- Crypturellus undulatus*: F 584.5; F 288.0 (MA)  
*Crypturellus parvirostris*: M 155.3, F 165.3; M 160.0 (MI); F 157.0 (MA)  
*Ictinia plumbea*: M 217 (MA)  
*Geranospiza melanoleuca*: F 435 (PA)  
*Milvago chimachima*: M 256 (PA); I 330 (SI)  
*Aramides cajanea*: M 430.6; I 355 (SI)  
*Hoploxypterus cayanus*: M 70.0 (SF); M 86.0 (MA)  
*Ara manilata*: F 358 (MA)  
*Aratinga leucophthalmus*: I 166 (SI)  
*Aratinga aurea*: M 85.5, F 88.0 (PA); F 80.0 (SJ); F 87, I 90.0 (SI); I 81 (MA)  
*Aratinga auricapilla*: M 130 (IB)  
*Amazona amazonica*: F 400 (MA)  
*Coccyzus melacoryphus*: II 37.5, 43.7; M 47.2 (MI)  
*Nyctibius griseus*: F 169.0 (MA)  
*Nyctidromus albicollis*: M 59.7, I 64.0  
*Caprimulgus parvulus*: M 37.3, II 37.7, 38.2 (MI)  
*Trogon curucui*: M 52.7 (MA); MM 57.9, 58.4 (MI)

- Baryphthengus ruficapillus*: I 142.0  
*Momotus momota*: F 96.0 (MA)  
*Brachygalba lugubris*: M 16.5 (MA)  
*Notharchus tectus*: F 38.5 (MA)  
*Nystalus chacuru*: M 50.0 (2), F 51.0 (MA)  
*Nystalus maculatus*: II 37.0, 42.0 (MA)  
*Monasa nigrifrons*: M 79.5 (MA); F 87.0 (MI)  
*Chelidoptera tenebrosa*: M 33.5, F 37.8 (MA)  
*Pteroglossus castanotis*: MM 227, 230, I 229 (MA)  
*Pteroglossus inscriptus*: MM 104, 117, F 112 (MA)  
*Picumnus guttifer*: MM 11.0, 12.4, I 11.5 (MA)  
*Chrysoptilus melanochloros*: F 74.5 (MA)  
*Celeus flavescens*: M 126.3 (MI); F 122.0 (MA)  
*Melanerpes cruentatus*: MM 54.5, 60.1, F 57.0 (MA)  
*Leuconerpes candidus*: M 112.7 (SJ)  
*Dendrocopus mixtus*: I 23.4  
*Campephilus melanoleucus*: M 217 (MA); M 228 (SJ)  
*Sittasomus griseicapillus*: II 13.6  $\pm$  1.0, 12.0–15.5 (19); F 10.8 (MI)  
*Xiphocolaptes albicollis*: F 130.6  
*Dendrocolaptes platyrostris*: M 56.2, F 64.5, II 55.0, 58.0; F 64.8 (MI)  
*Xiphorhynchus guttatus*: F 53.5 (MI)  
*Lepidocolaptes angustirostris*: F 25.3, II 22.7, 28.4  
*Poecilurus scutatus*: M 14.3; II 15.4  $\pm$  1.7, 13.5–19.5 (12)  
*Phacellodomus rufifrons*: F 25.7  
*Philydor dimidiatus*: F 29.7; II 29.4  $\pm$  1.5, 27.0–32.0 (10)  
*Thamnophilus caerulescens*: MM 20.0, 20.1, 22.5, 23.5, 24.0; MJMJ 23.0, 24.0; FF 21.0, 21.5 (2); I 28.5  
*Tityra cayana*: M 67.8  
*Tityra inquisitor*: M 38.5 (MI)  
*Antilophia galeata*: MM 20.6  $\pm$  1.9, 18.0–26.5 (39); SMSM 21.3  $\pm$  1.8, 18.5–25.2 (15); IMIM 20.0  $\pm$  1.2, 18.4–22.5 (12); FF 22.4  $\pm$  1.6, 18.8–26.2 (19); II 20.4  $\pm$  1.5, 17.2–23.0 (41)  
*Knipolegus lophotes*: M 35.2 (SF)  
*Tyrannus albogularis*: M 39.5  
*Empidonomus aurantioatrocristatus*: MM 20.0, 20.5 (MI)  
*Empidonax euleri*: MM 11.2, 13.0, II 10.8  $\pm$  0.8, 9.0–12.0 (17)  
*Elaenia flavogaster*: M 22.0, FF 20.0, 21.7, 22.3, 23.4, II 21.0, 22.9, 24.5  
*Elaenia mesoleuca*: MM 17.7, 18.1, FF 17.1, 19.5, II 17.5, 18.0, 18.2, 19.5 (2), 20.0, 22.0  
*Elaenia cristata*: MM 17.5, 18.2, 19.0, II 16.0, 16.8, 18.3  
*Elaenia chiriquensis*: MM 16.1  $\pm$  1.0, 14.4–17.4 (10), FF 14.2, 15.0, 15.5, II 10.4, 14.6, 15.5 (2), 15.8, 16.0, 16.3; MM 15.5, 16.5, F 14.5 (MI)  
*Elaenia obscura*: M 28.5, II 27.0, 28.0, 29.2  
*Cyanocorax cyanomelas*: MM 185.0, 192 (MA)  
*Cyanocorax cristatellus*: I 178.3  
*Cyanocorax cyanopogon*: FF 132.6, 159.5 (MI)  
*Thryothorus genibarbis*: MM 19.6, 21.0, F 17.0, I 18.5 (MA)  
*Thryothorus leucotis*: II 20.5  $\pm$  1.9, 16.0–23.0 (15)  
*Turdus nigriceps*: M 48.9, II 47.5, 52.0, 56.0  
*Turdus leucomelas*: M 60.0 (SF); M 67.0 (MI); MM 55.0, 56.0, FF 49.5, 59.5, 72.5 (MA); II 60.0  $\pm$  7.0, 47.0–76.0 (21)  
*Turdus albicollis*: II 55.8  $\pm$  6.9, 47.5–67.5 (10)  
*Basileuterus flaveolus*: MM 12.0, 13.0, 13.2, I 13.0 (MA); II 13.7  $\pm$  0.9, 12.0–15.0 (13)  
*Basileuterus hypoleucus*: II 11.4  $\pm$  0.8, 10.0–13.0 (33); MM 8.0, 10.5 (2), 10.8 (MA); M 10.6, I 10.3 (MI)  
*Basileuterus leucophrys*: II 15.0, 17.5 (2), 18.5, 19.5 (2), 20.0 (2), 22.0  
*Cyanerpes cyaneus*: M 12.8 (MA)  
*Tangara cayana*: MM 20.0, 20.5, 22.5 (2), MJMJ 20.0, 21.5, 24.0, II 19.0 (2), 20.5 (2), 21.5, 22.0, 22.5, 25.0; M 19.4 (MI); M 16.2 (SJ)  
*Tachyphonus rufus*: MM 28.0, 29.0, 31.0 (2), 32.5 (2), 33.0, MJMJ 28.0, 29.5, 30.5, 31.5, II 30.7  $\pm$  2.4, 27.5–33.7 (14); I 34.0 (SJ)  
*Trichothraupis melanops*: MM 21.0, 21.5, 25.5, II 21.0, 21.5, 22.5 (2), 23.0, 24.0 (2)  
*Cypsnagra hirundinacea*: F 34.0

*Pyrrhocoma ruficeps*: MM 15.5, 16.0, MJMJ 15.0 (2), 17.0, II 15.5, 18.0  
*Neothraupis fasciata*: M 28.0, I 25.3  
*Saltator maximus*: II 40.5, 51.5; M 46.0, I 42.0 (MI)  
*Saltator similis*: II 43.3 ± 4.3, 36.0–54.0 (21)  
*Oryzoborus angolensis*: I 14.0  
*Arremon taciturnus*: M 23.8 (MI)  
*Arremon flavirostris*: II 30.9 ± 1.2, 29.0–33.0 (11)  
*Poospiza cinerea*: M 15.2 (MI)

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*Addresses:* Roberto Brandão Cavalcanti & Miguel Ângelo Marini, Departamento de Ecologia, Universidade de Brasília, Brasília, DF, Brazil 70910. Present address of M.A.M.: Dept. de Biociências, Campus Umuarama, Bl. 2D, Universidade Federal de Uberlândia, MG, Brazil 38405-382.